

September 27, 2002
CPP 02-166

Ms. Kristy Chew
Siting Project Manager
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

**Re: SMUD Cosumnes Power Plant (01-AFC-19)
Comments on SMAQMD's Preliminary Determination of Compliance**

Dear Ms. Chew:

For your records, enclosed are SMUD's comments on the Preliminary Determination of Compliance issued by the Sacramento Metropolitan Air Quality District (SMAQMD). SMUD is filing the requisite copies with the Docket Unit and Proof of Service list.

Please call me at (916) 732-6246 if there are any questions.

Sincerely,

Stuart N. Husband
Safety Health & Environmental Specialist
SMUD Energy Supply

cc: CEC Docket Unit
Proof of Service list

September 27, 2002
CPP 02-159

Via Facsimile
(916) 874-4899

Brian Krebs
Program Coordinator
Sacramento Metropolitan Air Quality Management District
777 12th Street, 3rd Floor
Sacramento, CA 95814-1908

Re: SMUD Cosumnes Power Plant
Application A/C Nos. 16006, 16007, 16009, 16012, 16013
Comments on Preliminary Determination of Compliance

Dear Mr. Krebs:

On August 27, 2002, the Sacramento Metropolitan Air Quality Management District (SMAQMD) issued a Preliminary Determination of Compliance (PDOC) for the proposed Cosumnes Power Plant. The public comment period for the PDOC ends September 27, 2002. Attached are the Sacramento Municipal Utility District's (SMUD) comments on the subject PDOC.

Please contact me at (916) 732-6246 to discuss SMUD's comments and if there are any questions.

Sincerely,

Stuart N. Husband
Safety Health & Environmental Specialist
SMUD Energy Supply

Encl.: Comments on SMAQMD's PDOC for the SMUD CPP Project, September 27, 2002

cc: Steve Cohn/SMUD
Kevin Hudson/SMUD
Bob Nelson/SMUD
Colin Taylor/SMUD

Bcc: Tom Andrews, Sierra Research
Gary Rubenstein, Sierra Research
John Carrier, CH₂MHill
CPP Chron File
Corporate Files

Comments on SMAQMD's Preliminary Determination of Compliance for the SMUD Cosumnes Power Plant Project

Comment Regarding NOx Hourly Emission Rate (PDOC Section I.2)

As discussed in the comment below regarding the NOx BACT level, SMUD believes that the current NOx BACT level is 2.5 ppm rather than 2.0 ppm. Consequently, SMUD requests that the hourly NOx emission rates shown in Section I.2 of the PDOC be changed from 13.51 lbs/hr (based on 2.0 ppm) to 16.89 lbs/hr (based on 2.5 ppm).

Comment Regarding NOx Daily Emission Rate (PDOC Section I.2)

As discussed in the comment below regarding the NOx BACT level, SMUD believes that the current NOx BACT level is 2.5 ppm rather than 2.0 ppm. Consequently, SMUD requests that the daily NOx emission rates shown in Section I.2 be changed from 283.7 lbs/day per gas turbine (based on 2.0 ppm during normal operation) to 354.7 lbs/day per gas turbine (based on 2.5 ppm during normal operation).

Comment Regarding NOx 2.0 ppm BACT Determination (PDOC Section J.2)

In the District's PDOC (Section J.2, BACT), the justification for the BACT NOx level of 2.0 ppm (1-hr average) is based on a review of recent power plant permitting actions rather than based on a review of actual continuous emissions monitoring (CEM) data. As indicated in the Application for Certification for the CPP, SMUD has designed the project to meet a NOx level of 2.0 ppm on an annual average basis. In addition, SMUD will seek guarantees for compliance with a 2.0 ppm NOx level on a short-term basis. However, SMUD does not believe that BACT should be set at 2.0 ppm for NOx on a short-term basis because of a lack of in-use demonstration of compliance at this low level.

As BACT levels for NOx from combustion turbines have decreased over the last several years, increasing pressure has been placed on the integrated design of the combustion turbine, duct burners (where used), and SCR control systems. The fact that one can combine guarantees from different vendors to mathematically "prove" that low NOx levels are achievable does not, in fact, ensure that these levels can be met on a consistent basis.

The most dramatic demonstration of that fact can be seen in a review of the available CEM data for the ANP Blackstone facility in Massachusetts. This plant is permitted with a NOx limit of 2.0 ppm (1-hr average) and is frequently cited by the EPA to support its opinion that NOx BACT is 2.0 ppm. Table 1 below provides a summary of CEM data collected at the ANP Blackstone facility. Attachment 1 contains a more detailed analysis of the emissions from the facility.

Table 1 Field Performance of the ANP Blackstone Facility EPA Acid Rain Data – 2001 Calendar Year					
Facility	Unit	NOx Limit ¹	Operating Hours ²	Hours Above NOx Limit ³	% of Operating Hours Above NOx Limit ⁴
ANP Blackstone	1	2.0	1207	17	1.4%
ANP Blackstone	2	2.0	1505	13	0.9%

Notes:

1. NOx limits are expressed as ppmv, dry basis, corrected to 15% O₂.
2. Operating hours exclude all hours of startup and shutdown, and all hours of operation where the turbine load is below 70%. Startup periods are defined as 3-hour periods following initiation of fuel flow; shutdown periods are defined as 1-hour periods immediately prior to the cessation of fuel flow.
3. Hours above NOx limit exclude hours of startup and shutdown and hours where the turbine load is below 70%.
4. Calculated as the ratio of hours above the NOx limit divided by operating hours.

Although it is not possible to design an emission control system to be 100% reliable, SMUD does not believe that the SMAQMD would find that a violation rate of 0.9% - 1.4% would be acceptable.

EPA also uses a review of permit limits to establish BACT levels rather than reviewing actual CEM data. In response to earlier letters written by the EPA regarding a NOx BACT level of 2.0 ppm, SMUD's air quality consultants filed a Freedom of Information Act request seeking all of the information in EPA's possession to confirm their opinion that a 2.0 ppm NOx level represents BACT. In a response dated December 10, 2001, EPA staff confirmed that it has no such information in its possession, and they have not independently verified the claim that a 2.0 ppm NOx level was being consistently achieved. A copy of the Freedom of Information Act request and EPA's response is enclosed as Attachment 2. Consequently, SMUD believes that the NOx BACT level should remain at 2.5 ppm (1-hr average) until a short-term NOx limit of 2.0 ppm has been achieved on a consistent basis.

Comment Regarding Definition of Commissioning Period (PDOC Condition 7)

Included as PDOC Condition 7 is a definition of the gas turbine commissioning period. For air quality purposes, the main distinction between the commissioning period and normal operation is that during the commissioning period the gas turbines will have elevated emission levels until the combustion and SCR systems are tuned. Once the combustors and SCR are tuned and the gas turbines successfully pass their compliance tests, the commissioning period is complete with respect to air quality. Consequently, in the following requested revision of the definition for the commissioning period, SMUD has included the need to pass the compliance tests and has removed the references to commercial operation.

“...The Period shall commence when all mechanical, electrical, and control systems are installed and individual start-up has been completed, or when a gas turbine is first fired, whichever occurs first. The Period shall terminate when the gas turbine has successfully completed both performance and compliance testing.” ~~is available for commercial operation, and has initiated sales to the power exchange.”~~

Editorial Comment (PDOC Conditions 8 and 9)

The word “manufacturers” is misspelled.

Comment Regarding CO Hourly Emission Limit During Commissioning (PDOC Condition 15)

The hourly CO mass emission limit during commissioning does not account for cold start emissions of up to 902 lb/hr from a single gas turbine. This exceeds the maximum estimated CO emissions of 385 lb/hr from full speed/no load (FSNL) and ignition tests during the commissioning period. Because emissions from cold starts are expected to occur during the commissioning period, SMUD requests that the hourly CO mass emission limit during commissioning be revised from 410 lb/hr to 927 lb/hr.

Comment Regarding NOx Emission Limits (PDOC Condition 17)

As discussed in the comment regarding the NOx BACT level, SMUD believes that the current NOx BACT level is 2.5 ppm rather than 2.0 ppm. Consequently, SMUD requests that the hourly NOx emission rates shown in Condition 17 be changed from 13.51 lbs/hr (based on 2.0 ppm) to 16.89 lbs/hr (based on 2.5 ppm).

Comment Regarding SOx Emission Factor (PDOC Condition 17)

Footnote D to the condition prescribes a SOx emission factor of 0.71 lb/mmescf. For consistency with the emission factors prescribed for other pollutants, SMUD requests that the SOx emission factor be revised to 0.0007 lb/mmbtu. This revision will enhance consistency in the computerized data acquisition and handling system (DAHS) for the facility emission data.

Comment Regarding NOx Emission Limits (PDOC Condition 18)

As discussed in the comment regarding the NOx BACT level, SMUD believes that the current NOx BACT level is 2.5 ppm rather than 2.0 ppm. Consequently, SMUD requests that the daily NOx emission rates shown in Condition 18 be changed from 523.7 lbs/day (based on 2.0 ppm during normal operation) to 594.7 lbs/day (based on 2.5 ppm during normal operation).

Editorial Comment (PDOC Condition 18)

SMUD requests the following minor editorial revision:

“Emissions of NO_x, CO, ROC, SO_x, and PM₁₀ from Phase I ~~at~~ of the CPP facility...”

Editorial Comment (PDOC Condition 19)

SMUD requests the following minor editorial revision:

“Emissions of NO_x, CO, ROC, SO_x, and PM₁₀ from ~~at~~ Phase I ~~at~~ of the CPP facility...”

Comment Regarding NO_x Emission Limits (PDOC Condition 20)

As discussed in the comment regarding the NO_x BACT level, SMUD believes that the current NO_x BACT level is 2.5 ppm rather than 2.0 ppm. Consequently, SMUD requests that the hourly NO_x concentration shown in Condition 20 be changed from 2.0 ppm (1-hr average) to 2.5 ppm (1-hr average).

Comment Regarding NO_x Emission Limits (PDOC Condition 25)

As discussed in the comment regarding the NO_x BACT level, SMUD believes that the current NO_x BACT level is 2.5 ppm rather than 2.0 ppm. Consequently, SMUD requests that the NO_x concentration shown in Condition 25 be changed from 2.0 ppm to 2.5 ppm.

Comment Regarding Hourly Record Keeping (PDOC Condition 32)

SMUD requests the following revisions to Item C under Hourly Frequency to clarify record keeping of mass emission and pollutant concentration information:

- “C. Each combined cycle turbine’s NO_x, CO, ROC, SO_x, and PM₁₀ hourly mass emissions. For those pollutants directly monitored (NO_x and CO), the hourly mass emissions ~~will~~ shall be calculated based on concentration measurements from the CEM system required pursuant to condition 30. For those pollutants that are not directly monitored (ROC, SO_x, and PM₁₀), the hourly mass emissions shall be calculated based on District approved emission factors contained in footnotes to condition 17”

Comment Regarding Firing Capacity During Compliance Testing (PDOC Conditions 34 and 35)

SMUD requests the following revision to Item C in conditions 34 and 35 to account for the effect that ambient conditions have on firing capacity.

“C. During the test(s), each turbine is to be operated at ~~it’s~~ its maximum ~~total~~ firing capacity defined as $\geq 90\%$ of rated heat input capacity and taking into account ambient conditions.

Comment Regarding Surrender of ERCs (PDOC Condition 37)

SMUD requests the following revision to clarify “commencement of construction” to mean the start of construction in the field rather than substantial contractual and financial commitments for construction or equipment purchases.

“Except as provided in condition 40, the following list of emission reduction credits shall be surrendered prior to commencement of actual on-site construction.”

The quantity of PM10 ERCs for road paving should be revised to reflect the pending withdrawal of applications 00770 and 00771. The two road segments represented by applications 00770 and 00771 are not included in the agreement between SMUD and the Sacramento County Department of Transportation (DOT). The revised quantities of credits applied to the project after accounting for the 1.2 to 1 offset ratio will be:

- Qtr 1 – 14,823 lbs
- Qtr 2 – 20,448 lbs
- Qtr 3 – 28,300 lbs
- Qtr 4 – 21,156 lbs

Certificate numbers EC-0090 through EC-0095, Holly Sugar, should be revised to certificate numbers EC-0174 through EC-0178. Certificate numbers EC-0090 through EC-0095 (noted as pending in Appendix B of the PDOC) were retired permanently when the ERCs were transferred to SMUD.

Certificate number 825, Ag Containers, should be revised to certificate number 852. Certificate number 825 was retired permanently when the ERCs were transferred to SMUD.

Certificate number 839, American River Asphalt, should be revised to certificate number 851. Certificate number 839 was retired permanently when the ERCs were transferred to SMUD.

The SO_x ERC entry labeled Blue Diamond Growers (certificate number 737) should be revised to Campbell Soup.

The correct spelling for one of the ROC and NOx ERC sources is Burns “Philp” Foods, not “Philip”.

PDOC Condition 37 states that the specific allocation of ERCs to satisfy the offset requirement for those pollutants where SMUD possesses an excess amount of ERCs will be determined at the time of the surrender of the credits. SMUD concurs with and emphasizes this provision in that the ERCs listed in condition 37 reflect those that the SMAQMD has reviewed and deemed eligible to meet the offset requirements. SMUD has demonstrated that it owns or controls ERCs in sufficient quantities to meet the offset requirements. SMUD will retain those ERCs listed in condition 37 that are determined to be in excess of that necessary to meet the offset requirements.

Comment Regarding ERC Applications for Road Paving (PDOC Conditions 40 and 41)

Road paving proposed in ERC applications 00770 and 00771 will not be implemented and SMUD intends to withdrawal these applications. The ERC application numbers referenced in conditions 40 and 41 should be revised to delete applications 00770 and 00771.

ATTACHMENT 1

DETAILED NO_x EMISSIONS DATA FOR ANP BLACKSTONE

Table 1-1

**ANP Blackstone Unit 1
Summary Prepared by Sierra Research
January 1, 2001 to December 31, 2001**

Plant Statistics	
Total Hours in Review Period	6,552
Number of Operating Hours	1,793
Number of Operating Hours Above Min Load	1,207
Number of Turbine Starts	43

Valid Data Periods (Excludes Startup/Shutdown, Low Load Operation)				
NOx Limit (ppm) ->	3.0	2.5	2.0	1.5
Averaging Period				
1 hour	1,201	1,201	1,201	1,201
3 hour	1,207	1,207	1,207	1,207

Exceedance Periods (Excludes Startup/Shutdown, Low Load Operation)				
NOx Limit (ppm) ->	3.0	2.5	2.0	1.5
Averaging Period				
1 hour	14	14	17	1,127
3 hour	17	18	19	1,123

Exceedance Frequency (Percent of Valid Data Periods)				
NOx Limit (ppm) ->	3.0	2.5	2.0	1.5
Averaging Period				
1 hour	1.2%	1.2%	1.4%	93.8%
3 hour	1.4%	1.5%	1.6%	93.0%

Table 1-2

**ANP Blackstone Unit 2
Summary Prepared by Sierra Research
April 1, 2001 to December 31, 2001**

Plant Statistics	
Total Hours in Review Period	6,600
Number of Operating Hours	2,012
Number of Operating Hours Above Min Load	1,505
Number of Turbine Starts	38

Valid Data Periods (Excludes Startup/Shutdown, Low Load Operation)				
NOx Limit (ppm) ->	3.0	2.5	2.0	1.5
Averaging Period				
1 hour	1,463	1,463	1,463	1,463
3 hour	1,484	1,484	1,484	1,484

Exceedance Periods (Excludes Startup/Shutdown, Low Load Operation)				
NOx Limit (ppm) ->	3.0	2.5	2.0	1.5
Averaging Period				
1 hour	4	7	13	1,048
3 hour	5	10	11	1,034

Exceedance Frequency (Percent of Valid Data Periods)				
NOx Limit (ppm) ->	3.0	2.5	2.0	1.5
Averaging Period				
1 hour	0.3%	0.5%	0.9%	71.6%
3 hour	0.3%	0.7%	0.7%	69.7%

ATTACHMENT 2

FREEDOM OF INFORMATION ACT REQUEST TO EPA REGARD NO_x BACT

ber 12, 2001

**sierra
research**

1801 J Street
Sacramento, CA 95814
(916) 444-6666
Fax: (916) 444-8373

al Freedom of Information Officer
PA, Region IX
thorne Street (CGR-3-1)
ncisco, CA 94105

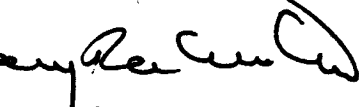
: FOIA Request
EPA Region IX Air and Toxics Division

DIA Officer:

ut to the Freedom of Information Act (5 U.S.C. §552), please provide copies of all
information that EPA possesses that indicates that a 2 ppm NOx level "has been
ntly achieved in a Region IX facility" (UC San Diego), as indicated in EPA's
r 25, 2001 letter to Mohsen Nazemi of the South Coast AQMD.

you for your attention in this matter. Please bill Sierra Research for reasonable
sociated with assembling this material. Please call me at (916) 444-6666 with
estions regarding this request.

ly,



ubenstein

December 10, 2001

enstein
earch

to, CA 95814

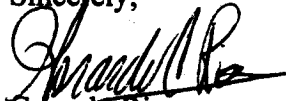
: Freedom of Information Act Request RIN 00066-02

Rubenstein,

is letter is in response to your Freedom of Information Act request dated November 12,
arding information that indicates that a NOx emission rate of 2.0 ppm has been
n practice at a Region 9 facility. The San Diego County Air Pollution Control District
aed EPA that it has data that indicates that a NOx emission rate of 2.0 ppm has been
n practice at the UC San Diego facility. However, EPA does not have this data, and
ependently verify the emission level. In addition, EPA has CEMS data from the
ogeneration Partners facility in Vernon CA. EPA has not yet evaluated this data to
whether it demonstrates that a NOx emission level of 2.0 ppm has been achieved at
y.

you have any further questions regarding this matter, please contact Roger Kohn of my
5) 972-3973.

Sincerely,



Gerardo Rios

Chief, Permits Office
Air Division